

II.4-RES-SNGL-A SINGLE RESERVOIR REGULATION OPERATION SCHEME AND UTILITY DESCRIPTIONS

Introduction

This Section contains descriptions of the methods used by the Schemes and Utilities available in the Single Reservoir Regulation Operation (RES-SNGL).

The types of information needed for the Operation are:

- o general information
- o specific information

The general information is the general parameters, time series and carryover that is needed regardless of the Schemes and Utilities chosen to simulate the regulation plan. The general parameters are an elevation versus storage curve and the interpolation type for using the curve. The time series are the inflow (both instantaneous and mean), the simulated mean discharge and optimally, the simulated instantaneous discharge, the simulated pool elevation and the simulated storage contents. The carryover consists of instantaneous inflow, mean and instantaneous discharge, pool elevations (current and one period back) and the storage contents.

The specific information is any additional parameters, time series and carryover needed to execute a particular Scheme or Utility.

The requirements for input (both for general and specific information) including syntax and appropriate default assignments are presented in Section V.3.3-RES-SNGL.

The descriptions of the individual Schemes and Utilities are in alphabetical order by Scheme/Utility identifier.

A list of Schemes and Utilities names and descriptions is in Table 1.

A list of symbols commonly used in all the Schemes and Utilities is in Table 2.

Symbols specific to a Scheme or Utility are defined separately. Symbols in brackets ([]) are the representation used in the input summary in Section V.3.3-RES-SNGL.

Table 1. Operation RES-SNGL Schemes and Utilities

<u>Identifier</u>	<u>Type</u>	<u>Description</u>
ADJUST	Utility	Outflow adjustment
BACKFLOW	Utility	Inflow adjustment
ENTERISC	Utility	Entry into induced surcharge Scheme
FILLSPILL	Scheme	Fill and spill
FLASHBDS	Scheme	Flash board control
GOFLASH	Utility	Entry into flash board Scheme
INDSRCHGE	Scheme	Induced surcharge
MAXQ	Utility	Maximum outflow
MINQ	Scheme	Discharge minimization
PASSFLOW	Scheme	Pass inflow
POOLQ	Scheme	Pool elevation controlled discharge
POWERGEN	Scheme	Power generation
RAINEVAP	Utility	Direct rainfall and/or evaporation
RULEADJ	Utility	Rule curve adjustment
RULECURVE	Scheme	Rule curve
SETH	Scheme	Prescribed elevation
SETMAX	Utility	Select maximum element
SETMIN	Utility	Select minimum element
SETQ	Scheme	Prescribed discharge
SPILLWAY	Scheme	Uncontrolled spillway
STPOOLQ	Scheme	Downstream stage and pool elevation controlled discharge
SUMINF	Utility	Inflow summation

Table 2. List of symbols

<u>Symbol</u>	<u>Description</u>
QI	Instantaneous inflow
QI ₁	Instantaneous inflow at the beginning of an operation time interval
QI ₂	Instantaneous inflow at the end of an operation time interval
QO	Instantaneous discharge
QO ₁	Instantaneous discharge at the beginning of an operation time interval
QO ₂	Instantaneous discharge at the end of an operation time interval
QIM	Mean inflow
QOM	Mean outflow
H	Pool elevation
H ₁	Pool elevation at the beginning of an operation time interval
H ₂	Pool elevation at the end of an operation time interval
V	Pool storage volume
V ₁	Pool storage volume at the beginning of an operation time interval
V ₂	Pool storage volume at the end of an operation time interval
Δt	Operation time interval